

### **REMARKS**

In the Office Action, claims 1-6, 8-15, 20-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Leichter et al. (U.S. Patent Application Number 2005/0047544, hereinafter “Leichter”) in view of Wang et al. (U.S. Patent Application Number 2005/0047544, hereinafter “Wang”). Claims 7, 16 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Leichter in view Wang further in view of Fu et al. (U.S. Patent Application Number 2005/0047544, hereinafter “Fu”). Claims 17-19 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

By this paper, Applicants have amended claim 12 to incorporate claim elements disclosed in the application and thereby to expedite allowance of the present application. These amendments do not add any new matter. Upon entry of these amendments, claims 1-26 will remain pending in the present application and are believed to be in condition for allowance. In view of the foregoing amendments and the following remarks, Applicants respectfully request reconsideration and allowance of all pending claims.

### **Discrepancies in Office Action Rejection**

Applicants wish to point out discrepancies in the Office Action mailed on September 9, 2007. In the “Claim rejections – 35 USC § 103” section on page 3, line 22, the Examiner mentioned that “Shino teaches a breast cancer scanning system”. However, in lines 10-12 on the same page, the Examiner mentioned that claims 1-6, 8-15, 20-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Leichter in view of Wang. *See* Office Action, page 3, lines 10-12. This Response is being filed under the assumption that mention of Shino is unintended and that claims 1-6, 8-15, 20-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Leichter in view of Wang.

**Rejections Under 35 U.S.C. § 103**

The Office Action summarizes that claims 1-6, 8-15, 20-25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Leichter in view of Wang. Claims 7, 16 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Leichter in view Wang further in view of Fu. Claims 1-26 are believed to be patentable as discussed below.

Claim 1 recites a method for viewing an abnormality in different kinds of images. The method includes scanning an object using a first imaging system to obtain at least a first image of the object; determining *coordinates of a region of interest (ROI)* visible on the first image, wherein the ROI includes the abnormality; and *using the coordinates of the ROI to scan the object with a second imaging system*.

Claim 8 similarly recites a system for viewing an abnormality in different kinds of images. Again, The system includes a controller configured to *determine coordinates of a region of interest (ROI) visible on the first image*, the ROI including the abnormality; and to *utilize the coordinates of the ROI to scan the object* with an ultrasound imaging system.

Claim 12, in its currently amended form recites a method for viewing an abnormality in different kinds of images. The method includes determining *coordinates of a region of interest (ROI) visible on an image* obtained using a first imaging system, the ROI including the abnormality; and *utilizing the coordinates of the ROI* to scan the object with a second imaging system.

Claim 21 also recites a method for viewing an abnormality in different kinds of images. The method similarly includes *determining coordinates of a region of interest (ROI)* on the X-ray image, wherein the ROI includes the abnormality; and instructing a

*probe mover to move a probe to the coordinates to scan a specific region of the object, wherein the specific region is defined by the coordinates.*

Finally, claim 24 recites a system for viewing an abnormality in different kinds of images. The system similarly includes a controller configured to *determine coordinates of a region of interest (ROI) visible on the X-ray image, the ROI including the abnormality; and to utilize the coordinates of the ROI to scan the object with an ultrasound imaging system.*

**Leichter fails to teach *determining coordinates of a region of interest (ROI) visible on the first image, wherein the ROI includes the abnormality; and using the coordinates of the ROI to scan the object with a second imaging system.***

In the "Claim Rejections" section, on page 3 of the current Office Action, the Examiner suggested that Leichter is believed to teach determining coordinates of a region of interest (ROI) visible on the first image, wherein the ROI includes the abnormality, and referred to paragraph 0038, lines 8-9 and paragraph 0050, lines 9-13 of Leichter. The cited passages read:

There is thus provided in accordance with the present invention a method for displaying a computer-generated determination of the likelihood of malignancy of a lesion observed in a mammogram. The method includes the steps of providing a digitized image of the mammogram and displaying the digitized image. It also requires employing an input device to select a region of interest directly on the displayed digitized image. *The location of the selected region of interest is communicated to a computer processor.* The digitized image is processed using the computer processor so that classifier data of a characterization feature of the lesion in the user-selected region of interest are quantified. The classifier data is comprised of a plurality of parameters and/or a weighted sum of these parameters, the latter representing a computer-generated overall evaluation of the likelihood of malignancy. Finally, the method requires displaying the quantified classifier data relating to the

characterization feature in the selected region of interest. The displayed classifier data generally includes a computer-generated overall evaluation of the likelihood of malignancy of the lesion. (Emphasis added.)

\* \* \*

The present invention relates to a method and system for displaying digitized mammogram images and diagnosis-assisting information that aids in interpreting the images. More specifically, the invention relates to a computer-aided diagnosis (herein after sometimes denoted as "CAD") method and system for classifying and displaying malignancy evaluation/classification data for anatomical abnormalities in digitized mammogram images. *Characterization features of suspected abnormalities in user-selected regions of interest (ROI) are viewed on a display in conjunction with an overall evaluation of malignancy and usually also with a plurality of quantified parameters related to the characterization features.* The overall evaluation of malignancy and/or the plurality of quantified parameters are herein also called classifier data. The characterization features viewed and evaluated/classified are also user-selected. (Emphasis added.)

The cited passages from Leichter do not support the Examiner's position, however. In describing the method of displaying a computer-generated determination of the likelihood of malignancy in a mammogram lesion, nowhere does Leichter teach *how to determining coordinates of a region of interest (ROI) visible on the first image, wherein the ROI includes the abnormality.* Indeed, one skilled in the art would clearly understand that *an user selects a region of interest.* Rather, Leichter is completely silent about any kind of coordinates.

Moreover, again on page 3 of the current Office Action, the Examiner recognized that Leichter does not teach *using the coordinates of the ROI to scan the object with a second imaging system.*

Wang fails to obviate the deficiencies in the teachings of Leichter. Specifically, Wang fails to disclose *determining coordinates of a region of interest (ROI) visible on the first image, wherein the ROI includes the abnormality, or using the coordinates of the ROI to scan the object with a second imaging system* as claimed in claims 1, 8, 12, 21 and 24.

The Examiner stated on page 4, lines 1-6 of the current Office Action that Wang reads on the claimed use of the coordinates of the ROI to scan the object with a second imaging system. The Examiner referred to paragraph 29, lines 7-9 of Wang and stated that it would have been obvious to one skilled in the art at the time of the invention to combine Leichter's X-Ray display system with Wang's second view using an ultrasound viewing system in order to promote volumetric thoroughness of the scan. The cited passage reads:

The scanning apparatus of the preferred adjunctive ultrasound mammography system is configured to yield ultrasound slices from successive planes in a breast volume substantially parallel to a plane of a predetermined x-ray mammogram view of the breast. *The scanning apparatus supports and maintains the breast during the ultrasound scan in a manner that promotes volumetric thoroughness of the scan, with the resulting ultrasound slices extending substantially all the way to the chest wall.* The scanning apparatus is capable of partially flattening the breast according to a desired x-ray mammogram view plane while also maintaining patient comfort. Efficient patient throughput is facilitated, while at the same time the risk of inter-patient contamination and fomite propagation is minimized. (Emphasis added.)

Here again, the cited passage from Wang does not support the Examiner's position. Wang begins with two images that were *already acquired*. The images are apparently independently acquired. *Thus, the coordinates of the ROI of one system are not used to scan the object with a second imaging system* as required by claims 1, 8, 12, 21 and 24.

Fu similarly fails to obviate the deficiencies in the teachings of Leichter. Specifically, Fu fails to disclose *determining coordinates of a region of interest (ROI) visible on the first image, wherein the ROI includes the abnormality; or using the coordinates of the ROI to scan the object with a second imaging system* as claimed in claims 1, 8, 12, 21 and 24.

Therefore, any combination of Leichter, Wang and Fu fails to teach or suggest determining coordinates of a region of interest (ROI) visible on the first image, wherein the ROI includes the abnormality; and using the coordinates of the ROI to scan the object with a second imaging system as recited in independent claims 1, 8, 12, 21 and 24. Consequently, the dependent claims are allowable at least by virtue of their dependency from an allowable base claim. Thus, it is respectfully requested that the rejection of these claims under 35 U.S.C. 103(a) be withdrawn.

In summary, Applicants respectfully submit that Leichter cannot support a *prima facie* case of obviousness of independent claims 1, 8, 12, 21 and 24. Accordingly, Applicants respectfully request the Examiner to reconsider the rejection of these claims. Claims 2-7 depend from independent claim 1; claims 9-11 depend from independent claim 8; claims 13-20 depend from independent claim 12; claims 22-23 depend from independent claim 21 and claims 25-26 depend from independent claim 24. Thus, it is respectfully requested that the rejection of these claims under 35 U.S.C. 103(a) also be withdrawn.

**Conclusion**

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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